

Review 3 Fall 1992

1. Do all the review problems on Taylor and MacLaurin Polynomials and Series that were handed out.
2. If you approximate the value of  $e$  by the 8th MacLaurin polynomial evaluated at  $x = 1$ , you get (approx.) 2.7183... How many accurate decimals do you get? You may use  $e < 3$  for your estimate.

3. Show that

$$16x^2 + 9y^2 - 64x - 54y + 1 = 0$$

is an ellipse and sketch it (omit foci).

- 4.

- a) Sketch the cardioid  $r = 4 + 4 \cos \theta$  and the circle  $r = 6$ .
- b) Find the area of the region outside the cardioid but inside the circle.

5. Sketch

$$r = 1 + 2 \sin \theta.$$

6. Page 588, problem 19.

7. Convert the polar curve  $r^2 - 4r \sin \theta + 3 = 0$  into a curve in Cartesian coordinates. Then identify the curve.

8. Find the equations of the asymptotes of  $x^2 - y^2 - 4x + 8y - 21 = 0$ .